

## 2 Cold rolled sheet

1. Hot rolled sheet and strip
2. Cold rolled sheet
3. Hot-dip galvanised sheet
4. Electrolytic zinc coated sheet
5. Hot aluminised sheet

### Grades and properties

Limitations, parameters for testing and exceptional arrangements are to be taken from the pertinent standard. In doubt the technical standards apply.

#### Mild steel grades

cold rolled mild steel flat products for cold forming, DIN EN 10130

Designation to		Mechanical properties					Chemical composition				
EN 10130	EN 10027-2 Material No.	R <sub>e</sub> [N/mm <sup>2</sup> ] max.	R <sub>m</sub> [N/mm <sup>2</sup> ]	A <sub>80</sub> [%] min.	r min.	n min.	C [%] max.	P [%] max.	S [%] max.	Mn [%] max.	Ti [%] max.
DC01	1.0330	280	270 to 410	28	–	–	0.12	0.045	0.045	0.60	–
DC03	1.0347	240	270 to 370	34	1.3	–	0.10	0.035	0.035	0.45	–
DC04	1.0338	210	270 to 350	38	1.6	0.180	0.08	0.030	0.030	0.40	–
DC05	1.0312	180	270 to 330	40	1.9	0.200	0.06	0.025	0.025	0.35	–
DC06	1.0873	170	270 to 330	41	2,1	0.220	0.02	0.020	0.020	0.25	0.3
DC07	1.0898	150	250 to 310	44	2,5	0.230	0.01	0.020	0.020	0.20	0.2

#### Micro-alloyed grades

cold rolled high yield strength flat products for cold forming, in micro-alloyed steels DIN EN 10268

Designation to		Mechanical properties							Chemical composition							
EN 10268	EN 10027-2 Material No.	R <sub>e</sub> [N/mm <sup>2</sup> ]	BH <sub>2</sub> [N/mm <sup>2</sup> ]	R <sub>m</sub> [N/mm <sup>2</sup> ]	A <sub>80</sub> [%] min.	r max.	r min.	n min.	C [%] max.	Si [%] max.	Mn [%] max.	P [%] max.	S [%] max.	Al [%] min.	Ti [%] max.	Nb [%] max.
HC180Y	1.0922	180 to 230	–	340 to 400	36	–	1.7	0.19	0.01	0.30	0.70	0.06	0.025	0.010	0.12	–
HC180P	1.0342	180 to 230	–	280 to 360	34	–	1.6	0.17	0.05	0.40	0.60	0.08	0.025	0.015	–	–
HC180B	1.0395	180 to 230	35	300 to 360	34	–	1.6	0.17	0.05	0.50	0.70	0.06	0.025	0.015	–	–
HC220Y	1.0925	220 to 270	–	350 to 420	34	–	1.6	0.18	0.01	0.30	0.90	0.08	0.025	0.010	0.12	–
HC220I	1.0346	220 to 270	–	300 to 380	34	1.4	–	0.18	0.07	0.50	0.50	0.05	0.025	0.015	0.05	–
HC220P	1.0397	220 to 270	–	320 to 400	32	–	1.3	0.16	0.07	0.50	0.70	0.08	0.025	0.015	–	–
HC220B	1.0396	220 to 270	35	320 to 400	32	–	1.5	0.16	0.06	0.50	0.70	0.08	0.025	0.015	–	–
HC260Y	1.0928	260 to 320	–	380 to 440	32	–	1.4	0.17	0.01	0.30	1.60	0.10	0.025	0.010	0.12	–
HC260I	1.0349	260 to 310	–	320 to 400	32	1.4	–	0.17	0.07	0.50	0.50	0.05	0.025	0.015	0.05	–
HC260P	1.0417	260 to 320	–	360 to 440	29	–	–	–	0.08	0.50	0.70	0.10	0.025	0.015	–	–
HC260B	1.0400	260 to 320	35	360 to 440	29	–	–	–	0.08	0.50	0.70	0.10	0.025	0.015	–	–
HC260IA	1.0480	260 to 330	–	350 to 430	26	–	–	–	0.10	0.50	0.60	0.025	0.025	0.015	0.15	–
HC300I	1.0447	300 to 350	–	340 to 440	30	1.4	–	0.16	0.08	0.50	0.70	0.08	0.025	0.015	0.05	–
HC300P	1.0448	300 to 360	–	400 to 480	26	–	–	–	0.10	0.50	0.70	0.12	0.025	0.015	–	–
HC300B	1.0444	300 to 360	35	400 to 480	26	–	–	–	0.10	0.50	0.70	0.12	0.025	0.015	–	–
HC300IA	1.0489	300 to 380	–	380 to 480	23	–	–	–	0.10	0.50	1.00	0.025	0.025	0.015	0.15	0.09
HC340IA	1.0548	340 to 420	–	410 to 510	21	–	–	–	0.10	0.50	1.10	0.025	0.025	0.015	0.15	0.09
HC380IA	1.0550	380 to 480	–	440 to 560	19	–	–	–	0.10	0.50	1.60	0.025	0.025	0.015	0.15	0.09
HC420IA	1.0556	420 to 520	–	470 to 590	17	–	–	–	0.10	0.50	1.60	0.025	0.025	0.015	0.15	0.09

**B** bake hardening    **P** phosphorous alloyed    **Y** interstitial-free (IF Steel)    **LA** low alloy (microalloyed)    **I** isotropic

## Structural steels

general structural steels, DIN 1623

Designation to			Mechanical properties			Chemical composition				
DIN 1623	DIN 1623 T2 (old)	EN 10027-2 Material No.	R <sub>e</sub> [N/mm <sup>2</sup> ] min.	R <sub>m</sub> [N/mm <sup>2</sup> ]	A <sub>80</sub> [%] min.	C [%] max.	Si [%] max.	Mn [%] max.	P [%] max.	S [%] max.
S 215 G	St 37-3 G	1.0116 G	215	360 to 510	20	0.17	–	1.50	0.030	0.025
S 245 G	St 44-3 G	1.0144 G	245	430 to 580	18	0.20	–	1.60	0.030	0.025
S 325 G	St 52-3 G	1.0570 G	325	510 to 680	16	0.20	0.55	1.60	0.030	0.025

## Enamelling grades

cold rolled mild steel flat products for enamelling, DIN EN 10209

Designation to		Mechanical properties				Chemical composition	
EN 10209	EN 10027-2 Material No.	R <sub>e</sub> [N/mm <sup>2</sup> ] max.	R <sub>m</sub> [N/mm <sup>2</sup> ]	A <sub>80</sub> [%] min.	r min.	C [%] max.	Ti [%] max.
DC01EK	1.0390	270	270 to 390	30	–	0.08	–
DC04EK	1.0392	220	270 to 350	36	–	0.08	–
DC06EK	1.0869	190	270 to 350	38	1.6	0.02	0.30
DC03ED	1.0399	240	270 to 370	34	–	–	–
DC04ED	1.0394	210	270 to 350	38	–	–	–
DC06ED	1.0872	190	270 to 350	38	1.6	0.02	0.30

## Multi-phase steel

cold rolled multi-phase steel for cold forming, pr DIN EN 10338

Designation to		Mechanical properties					Chemical composition									
EN 10338	EN 10027-2 Material No.	R <sub>e</sub> [N/mm <sup>2</sup> ] across	BH <sub>2</sub> [N/mm <sup>2</sup> ] across min.	R <sub>m</sub> [N/mm <sup>2</sup> ] across min.	A <sub>80</sub> [N/mm <sup>2</sup> ] across min.	n across min.	C [%] max.	Si [%] max.	Mn [%] max.	P [%] max.	S [%] max.	Al [%] max.	Cr+Mo [%] max.	Nb+Ti [%] max.	V [%] max.	B [%] max.
DP-Steel																
HCT450X	1.0937	260 to 340	30	450	27	0.16	0.140	0.800	2.000	0.080	0.015	2.00	1.00	0.15	0.20	0.005
HCT500X	1.0939	300 to 380	30	500	23	0.15	0.140	0.800	2.000	0.080	0.015	2.00	1.00	0.15	0.20	0.005
HCT600X	1.0941	340 to 420	30	600	20	0.14	0.170	0.800	2.200	0.080	0.015	2.00	1.00	0.15	0.20	0.005
HCT780X	1.0943	450 to 560	30	780	14	–	0.180	0.800	2.500	0.080	0.015	2.00	1.00	0.15	0.20	0.005
HCT980X	1.0944	600 to 750	30	980	10	–	0.230	0.800	2.500	0.080	0.015	2.00	1.00	0.15	0.20	0.005
TRIP-Steel																
HCT690T	1.0947	430 to 550	40	690	23	0.18	0.320	2.200	2.500	0.120	0.015	2.00	0.60	0.20	0.20	0.005
HCT780T	1.0948	470 to 600	40	780	21	0.16	0.320	2.200	2.500	0.120	0.015	2.00	0.60	0.20	0.20	0.005
CP-Steel																
HCT600C	1.0953	350 to 500	30	600	16	–	0.180	0.800	2.200	0.080	0.015	2.00	1.00	0.15	0.20	0.005
HCT780C	1.0954	500 to 700	30	780	10	–	0.180	0.800	2.200	0.080	0.015	2.00	1.00	0.15	0.20	0.005
HCT980C	1.0955	700 to 900	30	980	7	–	0.230	0.800	2.200	0.080	0.015	2.00	1.20	0.15	0.22	0.005

Grade availability has to be checked individually.

Surface aspect	Roughness	Oiling
A (03) B (05) (not to DIN EN 10268)	particularly smooth b smooth g matt m rough r	oiled, unoiled

A standard surface finish for non-visible (core) parts

B best surface finish for coated visible parts